

Begin\*  
# 620

TISHCHENKO, A.F.; TRET'YAKOV, V.L.

Production of chemical woodpulp from aspen at the Zhidachov Card-  
board and Paper Combine. Bum. 1 der. prom. no.3:21-24 J1-S '63.  
(MIRA 17:2)

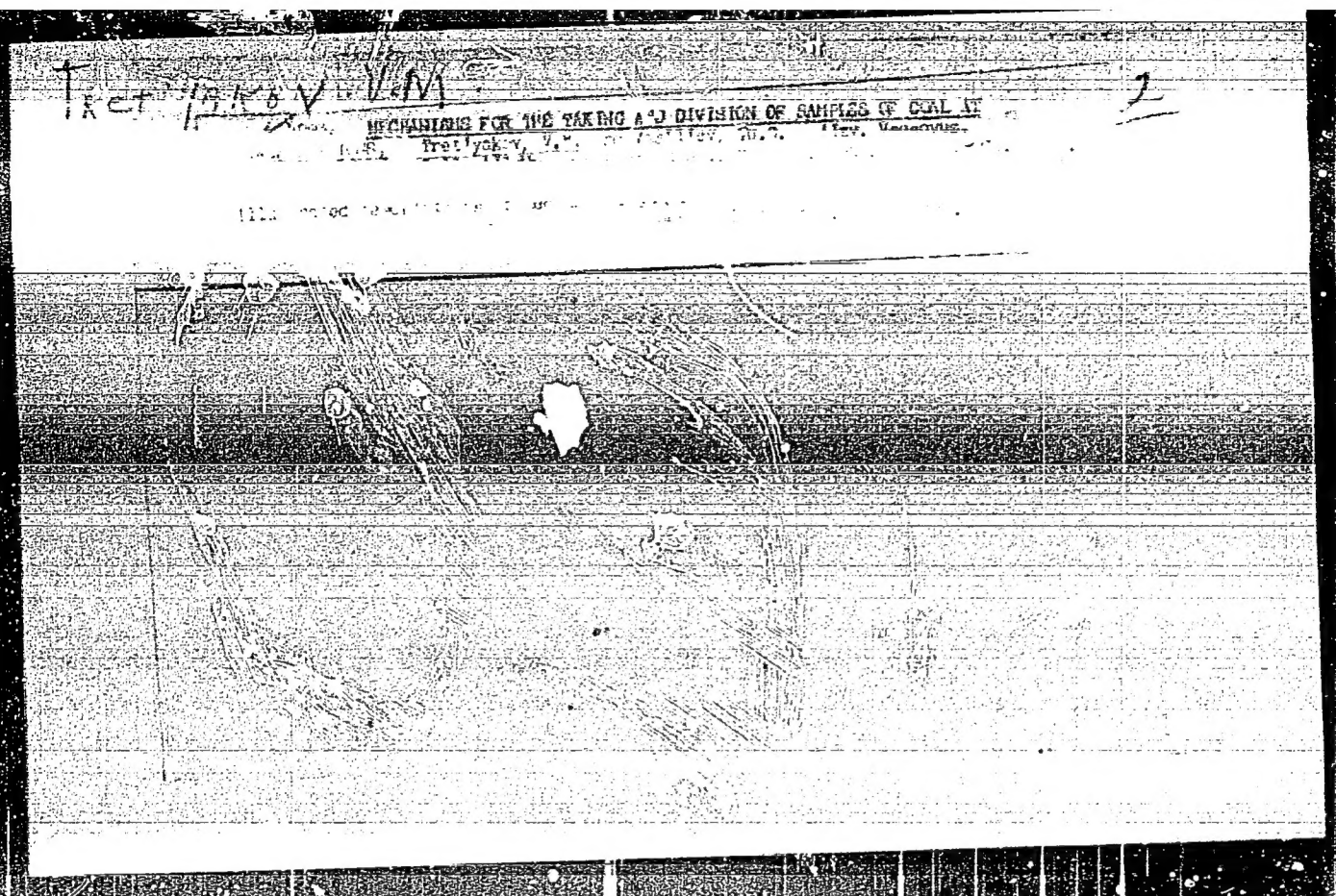
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4934. LABORATORY DYNAMICS OF IGNITION AND COMBUSTION OF POWDERED COAL AIR MIXTURES. Tretyakov, V. M. (Izvest. V.T.I. (Bull. All Russia Heat Inst.), 1947, (11), (151), 29-41). Describes experimental plant and methods used in studying ignition and combustion of powdered-coal-air mixtures. (L).

1ST AND 2ND CROSSL																										3RD AND 4TH CROSSL																									
COMMON ELEMENTS																										COMMON VARIABLES																									
<p>87. DETERMINATION OF LOSS IN CALORIFIC VALUE OF <sup>10</sup>COAL.  Zikarov, T. A. and Tret'yakov, V. M. (Za Ekonomiyu Tsel'nykh Resursov),  1947, (12), 12-18). (L.)</p>																																																			
<p>ASH-SLA METALLURGICAL LITERATURE CLASSIFICATION</p>																																																			

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Progress in steam engineering research. V. M. Tretyakov. V.I.T. (Moscow) 1948, No. 11, 28; Eng. & Boiler House Rev. 63, No. 6, 194-200.—An exptl. investigation of the combustion of particles of powdered coal showed that with increased combustion temp. the max. temp. attained by the incandescent particles rises, and its occurrence shifts towards the inlet end of the combustion tube. At the same time the temp. difference between the furnace wall and the incandescent particle at the chamber outlet end tends to decrease considerably. Subsequent to ignition the temp. of the incandescent particles is maintained at a high level, but as the particle is gradually consumed, its temp. begins to fall rapidly, approaching the limiting temp. level given by the temp. of the wall of the combustion space. The investigation covered high-volatile, low-volatile, and anthracite coal; the latter two showed quite different behavior along the flame path as compared with the first. R. W. Ryan



TRET'YAKOV, V.M.

USSR/Chemical Technology - Chemical Products and Their Application. Treatment of  
Solid Mineral Fuels, I-12

Abst Journal: Referat Zhur - Khimiya, No 19, 1956, 62552

Author: Tret'yakov, V. M.

Institution: None

Title: Investigation of Combustion of Coal Dust Aerosuspension at Elevated  
Pressures

Original

Periodical: Teploenergetika, 1955, No 10, 38-45

Abstract: Investigation of combustion of pulverulent aerosuspension in a  
tubular chamber 20 mm in diameter and one m long. It was found that  
with a constant temperature of burning and equal duration of the  
presence of coal particles in the combustion chamber completeness  
of combustion of aerosuspension and rate of combustion of the coal  
dust are practically independent of pressure. It has been demon-  
strated experimentally that steady combustion of anthracite aerosus-  
pension is possible at pressures up to 8 atm and considerable thermal  
loads.

Card 1/1



AID P - 4369

Subject : USSR/Heat Engineering

Card 1/1 Pub. 110-a - 14/19

Author : Tret'yakov, V. M., Eng. All-Union Heat Engineering  
Institute

Title : Coal dust feeder for research work '

Periodical : Teploenergetika, 4, 55-56, Ap 1956

Abstract : A detailed description of a slow-motion coal dust  
feeder used for experimental work is given. Two dia-  
grams.

Institution : None

Submitted : No date



TRET'YAKOV, V.M.; KLEYMENOVA, I.I.; DVORETSKIY, A.I., kand. tekhn.  
 nauk, red.; SAVEL'YEV, V.I., red.; VORONIN, K.P., tekhn. red.

[Automatic device for collecting average samples of fuel gas]  
Avtomaticheskii sbornik srednikh prob goriuchego gaza. Moskva,  
Gosenergoizdat, 1960. 45 p. (MIRA 15:12)  
(Gas as fuel)

TRET'YAKOV, V. N.: Master Vet Sci (diss) -- "The meat productivity of the cattle of Turkmenistan". Ashkhabad, 1959. 20 pp (Min Agric USSR, Leningrad Vet Inst) (KL, No 12, 1959, 131)

TRET'YAKOV, V.N.

Production of chemically precipitated chalk at the Biisk Sugar Factory.  
Sakh.prom. 27 no.6:27-28 Je '53. (MLRA 6:6)

1. Gruppovaya laboratoriya Altayskogo sakhsveklotresta. (Chalk)

TRET'YAKOV, V.N.

One hundred and thirty days of operation without a shut-down for  
boiling out evaporator. Sakh. prom. 31 no.5:29-30 My '57.

(MLRA 10:6)

1. Karabulakskiy sakharanny zavod.  
(Sugar machinery)

~~TRUT'YAKOV, V. M.~~

Increasing the holding capacity of white sugar bins. Sakh. prom. 31  
no. 6:37 Je '57. (MIRA 10:6)

1. Karabulakskiy sakharney zavod.  
(Bins)

TRET'YAKOV, V.N.

Boiling out the equipment of juice purification. Sakh. prom. 32  
no.8:60-61 Ag '58. (MIRA 11:9)

1. Karabulakskiy sakharnyy zavod.  
(Sugar machinery)



TRET'YAKOV, V.N.

Improvements at the Karabulak sugar factory. Sakh.prom.  
34 no.3:42-44 Mr '70. (MIRA 13:6)  
60

1. Karabulakskiy sakharnyy zavod.  
(Karabulak--Sugar industry--Equipment and supplies)

TRET'YAKOV, V.N.

Use of excavators for sugar beet unloading. Sakh.prom. 38 no.2:45-  
47 F '64. (MIRA 17:3)

1. Ramonskaya normativno-issledovatel'skaya laboratoriya po trudu.

TRET'YAKOV, V.N.

Improve labor productivity in the repair of sugar sacks. Sakh.prom.  
36 no.11:57-58 N '62. (MIRA 17:2)

1. Ramonskaya normativno-issledovatel'skaya laboratoriya po trudu.

TRET'YAKOV, V.N.

Shop for washing and repairing sacks. Sakh. prom. 35 no.12:38-39  
D '61. (MIRA 15:1)

1. Ramonskiy sakharnyy zavod,  
(Bagging)  
(Sugar industry--Equipment and supplies)

TRÉT'YAKOV, V.N.

DS-800 automatic scales for weighing beets. Sakh.prom. 34  
no.2:37-38 F '60. (MIIA 13:5)

1. Karabulakskiy sakharney zavod.  
(Karabulak--Sugar beets)  
(Scales (Weighing instruments))

TRET'YAKOV, V.N., inst.

Clamp construction of tubular dischargers. Energetik 11 no.7:  
21-22 JI '63. (MIRA 16:8)

(Electric protection) (Electric discharges)

L 698/65 EWT(m) DIAAP/BIWL/SSD/ESD(t)  
 ACCESSION NO: AP4047007

S/0250/6/1/908/009/0575/0578

AUTHOR: Koroz, L. G., Trat'yakov, V. N.

TITLE: The polarizability of the neutron

SOURCE: AN BSSR. Doklady\*, v. 8, no. 9, 1964, 575-578

TOPIC TAGS: neutron, neutron polarization, neutron scattering, meson cloud, meson polarization, nucleon

ABSTRACT: The electric polarizability derived from scattering experiments with slow neutrons seems larger than that supported by other experimental data. The contribution due to the meson cloud has been considered by several authors. The present authors calculate the electric and magnetic meson polarizability at 60 MeV with forward scattering using dispersion relations for six independent amplitudes. The total Compton scattering amplitude in the centroid system is expressed as a linear combination of these amplitudes. The dispersion relations for the real part are then given. Using unitarity requirements, the imaginary part is expressed as a bilinear combination of amplitudes for  $\pi$ -meson production at the nucleon in the S- and P-states. This can then be directly expressed by the angular distribution coefficients of the photomesons created at a proton and the ratio of cross sections

Card 1/2

L 6984-65

ACCESSION NR: AP4047007

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for  $\pi$ -meson production at the threshold of photoproduction. After some manipulations, the polarizabilities are given in terms of dispersion integrals which are then integrated by Simpson's method using six points, the numerical results so obtained being then tabulated. The electric polarizability was found to be  $(1.23 \pm 0.25) \times 10^{-42} \text{ cm}^3$ , and the magnetic:  $(7.7 \pm 10) \times 10^{-44} \text{ cm}^3$ . Recoil contributions can be neglected in this region. The values agree for those of the proton in order of magnitude, thus supporting Baldin's assumption. These results permit a conclusion to be drawn in favor of polarization of the  $\pi$ -meson cloud as the main mechanism of the polarizability of nucleons. The authors acknowledge aid from V. K. Fedyanin and V. A. Petrun'kin. Orig. art. has: 1 table, and 7 equations.

ASSOCIATION: Institut Fiziki AN BSSR (Physics Institute, AN BSSR)

SUBMITTED: 03Dec63

ENCL: 00

SUB CODE: NP

NO REF SOV: 007

OTHER: 005

Card 2/2



MOHOZ, L.G.; TRET'YAKOV, V.H.

Relation between the imaginary part of the amplitude of  
the Compton effect on a neutron and the photoproduction  
of  $\pi$ -mesons. Vestsi AN BSSR. Ser.fiz.-mat. nav.no.2:83-87  
'65. (MIRA 19:1)

TRET'YAKOV, V.N.

Potentials of savings in labor expenditure. Sakh. prom. 36  
no.7:43-45 J1 '62. (MIRA 17:1)

1. Ramonskaya normativno-issledovatel'skaya laboratoriya  
po trudu.

5 TRET'YAKOV, V.P.  
MARKOVETS, M.P.; TRET'YAKOV, V.P.

Method for determining depression resistance at high temperatures.  
(MIRA 11:3)  
Zav. lab. 24 no.3:329-330 '58.  
(Metals--Testing)

TRET'YAKOV, V.P.; RUDAKOV, Ye.S.

Free energies of intermolecular reactions in liquids. Izv. SO  
(MIRA 16:10)  
AN SSSR no.7 Ser.khim.nauk no.2:67-73 '63.

1. Novosibirskiy institut organicheskoy khimii Sibirskogo otdeleniya  
AN SSSR.

MARKOVITS, M.P. TRUT'YAKOV, V.P.

Method for studying abrasion at high temperatures. Zav. lab. 24  
(MIRA 11:6)

TID 5:625-626 '58.

(Tool steel--Testing) (Abrasion)

RUDAKOV, Ye.S.; TRET'YAKOV, V.P.

Henry's coefficients for tertiary butyl chloride in ethyl,  
n-butyl, and n-hexyl alcohols. Izv. SO AN SSSR no.7 Ser.  
khim nauk no.2:137-138 '64 (MIRA 18:

1. N-voibirskiy institut organicheskoy khimii Sibirskogo otdel-  
eniya AN SSSR.

TREI'YAKOV, V.P. (Arzamas)

Multiplication of double series, the partial sums of one of  
which are unlimited. Izv.vys.ucheb.zav.; mat. no. 1:122-124  
'64. (MIRA 17:5)

TRET'YAKOV, V.P.

Formal multiplication of double trigonometric series.  
Uch. zap. Kaz. un. 1964 no.6:308-311 '64. (1964 18:4)



AUTHORS: Markovets, M.P., Tret'yakov, V.P.

32-3-27/12

TITLE: A Method of Determining Crumpling Resistance at High Temperatures  
(Metodika opredeleniya soprotivleniya sayatiyu pri vysokikh temperaturakh)

PERIODICAL: Zavodskaya Laboratoriya, 1958, Vol. 24, Nr 3, pp. 329-330 (USSR)

ABSTRACT: A method of determining crumpling tensions was developed. It is based upon measuring the stress exercised by a sphere with a diameter of 10 mm which leaves a groove of 0.9 mm diameter. In order to bring this about several grooves were made, and by interpolation the stress corresponding to that of a 0.9 mm diameter was calculated. For this purpose a heatable device was developed (I.N. Bogdanov and A.N. Kolesnikova assisted in constructing the furnace) which essentially consists of a dynamometer to which the pressure stress of a hard-alloyed spherical segment (with 10 mm diameter), which is pressed onto the investigated sample is transmitted by way of a leaf spring. Work can be carried out at temperatures of 20 - 800° C. Investigation results show that at temperatures of 700 - 800° C punching alloys show better crumpling re-

Card 1/2

A Method of Determining Crumpling Resistance at  
High Temperatures

32-3-27/52

sistance than punching tool steel. There are 1 figure, 1 table  
and 1 reference, 1 of which is slavic.

AVAILABLE: Library of Congress

1. Steel alloys-test methods
2. Steel alloys-Test results

TRET'YAKOV, V.P. (Arzamas)

Multiplication of double series in the case when the partial  
sums of one of the series are unbounded. Volzh. mat. sbor.  
no.1:216-220 '63. (MIRA 19:1)

YEVLANOV, N.G.; TRET'YAKOV, V.P.

Determination of deformation forces on crankshaft presses for hot  
forging. Kuz. shtam. proizv. 3 no.s: 46-47 My '61. (MIRA 14:5)  
(Power presses) (Deformations (Mechanics))

TRITYAKOV, V.P.,  
A.S. FALKEVICH, Avtogennoe Delo 6, No. 7, 7-11 (1935)

TRET'YAKOV, V.P.

Theory of formal multiplication of double series. *Izv.vys.ucheb.*  
zav.; mat. no.5:78-85 '61. (MIRA 14:10)

1. Kazanskiy gosudarstvennyy universitet imeni V.I.Ul'yanova-Lenina.  
(Series)

ZHDANOV, V.A.; ~~TRET'YAKOV~~, V.P.

Temperature dependence of the Debye temperature of  $\text{Cu}_3\text{Au}$  alloys.  
Izv.vys.ucheb.zav.;fiz.no.2:14-18 '63.

(MIRA 16:5)

1. Sibirskiy fiziko-tekhnicheskiy institut pri Tomskom gosudar-  
stvennom universitete imeni Kuybysheva.  
(Copper-gold alloys--Thermal properties)

AL'PEROVICH, Yu.I.; GUTCHIN, I.B.; KAYEYSHEVA, L.S.; TEPLOV, L.P.;  
BOGDANOV, G.G.; DROBYSHEV, Yu.G.; SMIRNOV, G.V.;  
TRET'YAKOV, V.S.; BREYDO, M.I.; YEVSEYEV, L.A.; STEBAKOV,  
S.A.; FEDCHENKO, V., red.

[The ABC's of automation; collected articles] Azbuka avto-  
matiki; sbornik. Moskva, Molodaia gvardiia, 1964. 349 p.  
(MIRA 17:7)



TRET'YAKOV, V.V.

Modified portable mercury vapor lamp. Ortop.travm. i protez. 17 no.6:  
133 N-D '56. (MLRA 10:2)

1. Zaveduyushchiy eksperimental'noy masterskoy. Iz Rzhskogo nauchno-  
issledovatel'skogo instituta ortopedii i vosstanovitel'noy khirurgii.  
(ELECTRIC LIGHTING, MERCURY VAPOR)

TPET'YAKOV, V.V.; ONDZULS, P.A. (Riga)

Apparatus for the application of controlled thermal burns in  
laboratory animals. Pat. fiziol. i eksp. terap. 4 no. 5:68-69  
S-O '60. (MIRA 13:12)

1. Iz laboratorii patologicheskoy fiziologii i funktsional'noy  
diagnostiki (zav. - prof. L.M. Gol'ber) Rzhskogo nauchno-issledo-  
vatel'skogo instituta travmatologii i ortopedii.  
(BURNS AND SCALDS)

TRET'YAKOV, V.V.

Registering the amplitude of flexion of the knee joint with the  
electrocardiography. Ortop., travm. i protez. 20 no. 12:46-49 D  
'59. (MIRA 13:5)

1. Zaveduyushchiy eksperimental'noy masterskoy Rzhvskogo nauchno-  
issledovatel'skogo instituta travmatologii i ortopedii (dir. -  
prof. O.M. Rudenko [deceased]).

(KNEE)

(ELECTROCARDIOGRAPHY)

TRIF'YAKOV, V.V. (Khar'kov)

Determining the width of foundations according to the standards  
Specifications and Regulations. Gen., fund. i mezh. st. 6 str. 5:  
22-23 '64. (MIRA 1964)

TRET'YAKOV, V.V.; ONDZUL, P.A.

Electrical thermometer for measuring skin temperature. Biul. eksp.  
biol. i med. no.2:115-116 P '61. (MIRA 14:5)

1. Iz laboratorii patologicheskoy fiziologii i funktsional'noy  
diagnostiki (zav. - prof. L.M.Gol'ber) Rzhskogo nauchno-issledovatel'-  
skogo instituta travmatologii i ortopedii (dir. - kand.med.nauk V.K.  
Kaliberz). Predstavlena deystvitel'nym chlenom AMN SSSR V.V.Parinym.  
(THERMOMETERS) (BODY TEMPERATURE)

TRET'YAKOV, V.V.

Sanitary supervision of enterprises and institutions using radioactive substances in their work. Gig. i san. 26 no.8:63-67 Ag '61.  
(MIRA 15:4)

1. Iz radiologicheskoy laboratorii respublikanskoy sanitarno-epidemiologicheskoy stantsii Latvyskoy SSR.  
(RADIATION PROTECTION)

ONDZULS, P.A.; TRET'YAKOV, V.V. (Riga, ulitsa Maza Pils, dom 11, kvartira 2)

Indicator of the degree of relative displacement of the bones  
of the extremities at the site of fracture in skeletal traction.  
Ortop., trevn. i protez. no.8:58-60 '62. (MIRA 17:10)

1. Iz laboratorii patologicheskoy fiziologii i funktsional'noy  
diagnostiki (zav.- prof. L.M. Gol'ber) Rzhskogo institut-  
travmatologii i ortopedii (dir.- kand. med. nauk V.K. Ka'nberz  
[Kalinberzs, V.]).

L 10250-63

Pl-4/Po-4/Pq-4

NW/BC

EW(d)/EPF(n)-2/BDS

AFPTC/ASD/APOC/SSD

Pu-4/Pg-4/Pk-4

ACCESSION NR: AP3001083

S/0103/63/024/006/0738/0743

AUTHOR: Repin, Yu. M. (Sverdlovsk); Tret'yakov, V. Ya. (Sverdlovsk)

82

TITLE: Solving the problem of analytical design of controllers by means of analog computers

9

SOURCE: Avtomatika i telemekhanika, v. 24, no. 6, 1963, 738-743

TOPIC TAGS: analytical design of controllers, analog computer

ABSTRACT: A. M. Letov (Avtomatika i telemekhanika, vol. 21, no. 4, 5, 6, 1960) suggested a set of linear differential equations that described a control system; he also submitted a solution that included a set of algebraic equations. However, the latter had very hard-to-obtain multiple solutions. The present article offers a set of nonlinear differential equations "equivalent" to the above algebraic. This set is readily solvable by means of an analog computer. Also a mathematical investigation is presented of the necessary and sufficient conditions that make the problem of designing the "optimum controller" solvable. Derivation of these conditions is based on the relations obtained by R. E. Kalman (Proc. Symp. Appl. Mathem., vol. 13, 1962). "The authors are using this opportunity to express their appreciation to N. N. Krasovskiy for discussing this article." Orig. art. has: 1 figure

Card 1/2/



Ye. (Sverdlovsk)

INDEX

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Abstracts 6 4 1963. 1-11

TOPIC TAGS: automatic control theory, automatic control system, game theory

players one of which tries to choose a move which will lead to a certain result.

controls, and the general results are illustrated. Summary of single game and a.  
Card 1/2

L 55247-6<sup>c</sup>

ACCESSION NR: AP5021846

motion modeled on computers (motion of two mass points along a horizontal axis sub-

positions). Orig. art. has: 36 formulae and 10 figures.

ASSOCIATION: None

Card 2/2

L 29186-66 EWT(d)/FSS-2 IJP(c) BC

ACC NR: AP6017846

SOURCE CODE: UR/0376/66/002/005/0587/0599

AUTHOR: Krasovskiy, N. N.; Tret'yakov, V. Ye.

50  
B

ORG: Ural State University im. A. M. Gor'kiy (Ural'skiy gosudarstvennyy universitet)

16 9  
TITLE: On the pursuit problem with constraints imposed upon the impulses of the control response

SOURCE: Differentsial'nyye uravneniya, v. 2, no. 5, 1966, 587-599

TOPIC TAGS: automatic control, optimal control, pursuit problem, motion mechanics

ABSTRACT: The pursuit problem for two objects whose motion is described by the differential equations:

$$\dot{y} = Ay + Bu, \quad (1)$$

$$\dot{z} = Gz + Mv. \quad (2)$$

where  $y(t)$ ,  $z(t)$  and  $u(t)$ ,  $v(t)$  are the state and control vectors of the pursuing and the pursued objects, respectively, and  $A, B, G, M$  are constant matrices, is analyzed under the assumption that  $u(t)$  and  $v(t)$  are constrained at every instant  $t$  by the

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UDC: 517.934

L 29186-66

ACC NR: AP6017846

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inequalities

$$\int_{\tau}^{\infty} \left[ \sum_{j=1}^l u_j^2(t) \right]^{1/2} dt \leq \mu(\tau), \quad (3)$$

$$\int_{\tau}^{\infty} \left[ \sum_{j=1}^l v_j^2(t) \right]^{1/2} dt \leq v(\tau), \quad (4)$$

Constraints (3), (4) are considered as constraints on the impulses of control responses. Under the assumption that the pursued knows the coordinates  $Y_1(\tau)$  and  $Z_1(\tau)$  and the bounds  $\mu(\tau)$  and  $v(\tau)$  at every instant  $t = \tau > 0$  and the pursuer knows the values of  $Y_1(\tau)$ ,  $Z_1(\tau + 0)$ ,  $\mu(\tau)$ ,  $v(\tau + 0)$ , and  $v(\tau + 0)$ , but the next motion of the opponents is not known to either one, the control

$$u(\tau) = \xi^0[y(\tau), z(\tau + 0), \mu(\tau), v(\tau + 0), v(\tau + 0)]$$

is sought which ensures an encounter of the two objects no matter what control

$$v(\tau) = \eta[y(\tau), z(\tau + 0), \mu(\tau), v(\tau + 0), v(\tau + 0)]$$

is chosen. It is considered that the control  $u = \xi^0$  together with the control  $v = \eta^0$  constitute a pair of optimal controls if: 1) at  $Y = \xi^0$  and  $v = \eta^0$ , an en-

Card 2/3

L 29186-66

ACC NR: AP6017846

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counter of  $y(t)$  and  $z(t)$  will certainly take place at a certain instant  $t = \theta^0$ ;  
 2) in case  $\theta$  deviates from  $\theta^0$ , the encounter takes place not later than at  $t = \theta^0$ .  
 The possibilities of solving the defined problem are discussed on the basis of  
 dynamic programming methods and on the concept of attainability domains for pro-  
 cesses (1) and (2) introduced in the author's article [Tekhnicheskaya kibernetika,  
 no. 4, 1965]. The difficulties appearing here are indicated and the means for  
 overcoming them are analyzed. The presented approach to the solution of the pursuit  
 problem is illustrated by a simple example. Orig. art. has: 26 equations. [LK]

SUB CODE:20, 12/SUBM DATE: 02Feb66/ ORIG REF: 003/ OTH REF: 001/ ATD PRESS:

5004

Card 3/3 BLG

REPIN, Yu.M. (Sverdlovsk); TRET'YAKOV, V.Ye. (Sverdlovsk)

Solution of a problem on the analytical design of controllers  
using electronic analog computers. Avtom. i telem. 24 no.6:  
738-743 Je '63. (MIRA 16:7)

(Automatic control)  
(Electronic analog computers)

KRASOVSKIY, N.N. (Sverdlovsk); REPIN, Yu.M., (Sverdlovsk); TRET'YAKOV, V.Ye.  
(Sverdlovsk)

Some game situations in the theory of regulated systems.

Izv. AN SSSR. Tekh. kib. no.4:3-13 J1-Ag '65.

(MIRA 18:11)

TRET'YAKOV, Ye. (Novosibirsk)

Attack on losses. Mest.prom. i khud.promys. 4 no. 3:12-13 M. '63.  
(MIRA 16:4)

1. Spetsial'nyy korrespondent zhurnala "Mestnaya promyshlennost' i  
khudozhestvennyye promysly".  
(Novosibirsk—Clothing industry)



TRET'YAKOV, Ye. (Chelyabinsk)

Behind the rows of average figures. Mest. prom. i khud. promys.  
3 no.9:8-13 S '62. (MIRA 16:12)

1. Spetsial'nyy korrespondent zhurnala "Mestnaya promyshlennost'  
i khudozhestvennyye promysly."

TRET'YAKOV, Ye. (Moskva)

Don't forget books. Mest. prom. i khud. promys. no.5:23 My '63.

(MIRA 16:7)

(Moscow—Service industries) (Bookbinding)

TRET'YAKOV, Ye.

When the aim is clear. Mest.prom.i khud.promys. 3 no.2:15-16  
F '62. (MIRA 15:2)

1. Spetsial'nyy korrespondent zhurnala "Mestnaya promyshlennost' i  
Khudozhestvennyye promysly."  
((Belgorod—Socialist competition)(Molding(Founding))

TRET'YAKOV, Ye. (g.Moskva)

Captives of formalism. Mast.prom.i khud.promys. 2 no.7:19 J1  
'61. (MIRA 15:1)

(Moscow--Socialist competition)

TRET'YAKOV, Ye. (Moskovskaya oblast')

Man for his fellow man. Mest.prom.i khud.promys. 3 no.1:18  
Ja '62. (MIRA 15:2)  
(Moscow Province—Textile workers)

+RETAYAKOV, YE.

37

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SOV/5585

Rokotyan, Ye. S., Doctor of Technical Sciences, ed.

Prokatnoye proizvodstvo; spravochnik (Rolling Industry; Handbook) v. 1. Moscow, Metallurgizdat, 1962. 743 p. Errata slip inserted. 9250 copies printed.

Authors of this volume: B. S. Azarenko, Candidate of Technical Sciences; V. D. Afanas'yev, Candidate of Technical Sciences; M. Ya. Brovman, Engineer; M. P. Vavilov, Engineer; A. B. Vornik, Engineer; K. A. Golubkov, Engineer; S. I. Gubkin, Academician, Academy of Sciences USSR; A. Ye. Guravich, Engineer; V. I. Davydov, Candidate of Technical Sciences; V. G. Drozd, Engineer; N. F. Yermolayev, Engineer; Ye. A. Zhukovich-Stopha, Engineer; N. M. Kirilin, Candidate of Technical Sciences; M. V. Kovynov, Engineer; A. M. Kogos, Engineer; A. A. Korolov, Professor; M. Ye. Kugayenko, Engineer; A. V. Lankin, Engineer; B. A. Levitanskiy, Engineer; V. M. Lugovskoy, Engineer; I. M. Mayerovich, Candidate of Technical Sciences; M. S. Orcharov, Engineer; V. I. Pastornak, Engineer; I. L. Perlin, Doctor of Technical Sciences; I. S. Pobedin, Candidate of Technical Sciences; Ye. S. Rokotyan, Doctor of Technical Sciences; M. M. Saf'yan, Candidate of Technical Sciences; V. V. Smirnov, Candidate of Technical Sciences; V. S. Smirnov, Corresponding Member, Academy of Sciences USSR; O. P. Sokolovskiy,

Card 1/2

Rolling Industry; Handbook

32  
XVI/5985

Engineer; O. P. Solov'yev, Engineer; M. A. Sidorkevich, Engineer; Ye. M. Trat'yakov, Engineer; I. S. Trishovskiy, Candidate of Technical Sciences; G. N. Khenkin, Engineer; and A. I. Tsolikov, Corresponding Member, Academy of Sciences USSR. Introduction: A. I. Tsolikov, Corresponding Member, Academy of Sciences USSR; Ye. S. Rokotyan, Doctor of Technical Sciences; and L. S. Al'shevskiy, Candidate of Technical Sciences.

Eds. of Publishing House: V. M. Gorobinchenko, R. M. Golubchik, and V. A. Rymov; Tech. Ed.: L. V. Dobuzhinskaya.

**PURPOSE:** This handbook is intended for technical personnel of metallurgical and machine-building plants, scientific research institutes, and planning and design organizations. It may also be useful to students at schools of higher education.

**COVERAGE:** The fundamentals of plastic deformation of metals are discussed along with the theory of rolling and drawing. Methods of determining the power consumption and the forces in rolling with plane surface or grooved rolls are

Card 2/13

Rolling Industry; Handbook

SOV/5985

3. Position of the no-slip section and the forward-slip section	73
4. Distribution of deformation along the width of the rolled metal section and the spread	76
Ch. 5. Forces in Longitudinal Rolling (Ye. S. Rokotyan) [Abridged]	
1. Formulas for determining the pressure of metal on rolls	80
2. General method of determining the average specific pressure of metal on rolls by theoretical formulas	96
3. Determination of coefficients and parameters included in formulas for calculating the pressure of metal on rolls	97
4. Method of torque calculation	116
5. Determination of forces at continuous billet mills (M. Ya. Brovna)	124
6. Determination of forces in rolling with square-shaped grooves (V. M. Lugovskoy, Ye. Tretyakov)	127
Ch. 6. Power Consumption in Rolling (Ye. S. Rokotyan) [Abridged]	

Card 7/19



TRET'YAKOV, Ye. (Leningrad)

The steepness of the rising. *Mest.prom.i khud. promys* 3 no.1:2-4  
Ja. '63. (MIRA 16:2)

1. Spetsial'nyy korrespondent zhurnala "Mestnaya promyshlennost'  
i khudozhestvennyye promysly".  
(Leningrad—Foundries—Technological innovations)  
(Machinery, Automatic)

TRIF 'YAKOV', Ye.

Intercollegiate scientific conference on the use of oxygen in metallurgy.  
Metallurg no.8:35-36 Ag '56. (MIRA 9:10)

1. Moskovskiy institut stali.  
(Metallurgy) (Oxygen--Industrial applications)

TRET'YAKOV, Ye. (Krasnogorskiy rayon, Moskovskoy oblasti)

Every little makes a mickle. Mest.prom.i khud.promys. 1 no.2/3:  
22 N-D '60. (MIRA 14:4)

(Moscow Province---Industrial management)

TRET'YAKOV, Ye. (g. Rostov-na-Donu)

In the middle of the road. Mest.prom. i khud.promys. 2  
no. 5:29-30 My '61. (MIRA 14:5)

1. Spetsial'nyy korrespondent zhurnala "Mestnaya promyshlennost'  
i khudozhestvennyye promysly."  
(Rostov Province--Boots and shoes)

TRET'YAKOV, Ye.

Nonwoven fabrics. Mast. prom. i khud. promys. 2 no.6:14 3e  
'61. (MIRA 14:7)

(Nonwoven fabrics)

TRET'YAKOV, Ye.

Wide horizons. Mest.prom.i khud.promys. 2 no.3:23-24 Mr '61.  
(MIRA 14:4)

(Bakers and bakiers--Exhibitions)

TRETYAKOV, Y. F.

6009.  
RML-9.

✓ 4077 AEC-tr-2435((Pl. i) (p.167-82))

α-SPECTRA OF HEAVY ELEMENTS. L. I. Goldin, G. I.

Novikov, and E. F. Tretyakov. p.167-82 of CONFERENCE

OF THE ACADEMY OF SCIENCES OF THE USSR ON THE

PEACEFUL USES OF ATOMIC ENERGY, JULY 1-6, 1955.

SESSION OF THE DIVISION OF PHYSICAL AND MATHE-

MATICAL SCIENCES. (Translation). 16p.

This paper was originally abstracted from the Russian

and appeared in Nuclear Science Abstracts as NSA 9-7905.

RML-224

ACCESSION NR: AP4042589

S/0056/64/046/006/2241/2242

AUTHORS: Kondrat'yev, L. N.; Tret'yakov, Ye. F.

TITLE: New data on the excited levels of W-182

SOURCE: Zh. eksper. i teor. fiz., v. 46, no. 6, 1964, 2241-2242

TOPIC TAGS: tungsten, level transition, beta spectrometry, photoelectron, internal conversion, multipolarity

ABSTRACT: The conversion-electron and photoelectron spectra of W<sup>182</sup> were investigated in the toroidal-field iron-free double  $\beta$  spectrometer of ITEP, described elsewhere (Izv. AN SSSR, ser. fiz., v. 26, 1470, 1962). The results are used to compile an excited level scheme for W<sup>182</sup>. The multipolarities indicated on the level scheme were determined from the ratios of the internal conversion coefficient on different subshells in the case of low-energy transitions, and from the intensities in conversion-electron and photoelectron

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ACCESSION NR: AP4042589

spectra in the case of high-energy transitions. The 892.2-keV transition between the 1222- and 329.6-keV levels was observed experimentally for the first time. The spins and parities of several excited levels of  $W^{182}$  were determined from the multipolarities of the transitions. The results agree with all published data except the 1258-keV level, for which the authors obtain an assignment  $3^-$ , with the literature data giving either  $2^+$  or  $1^-$ . Orig. art. has: 1 figure.

ASSOCIATION: None

SUBMITTED: 13Aug63

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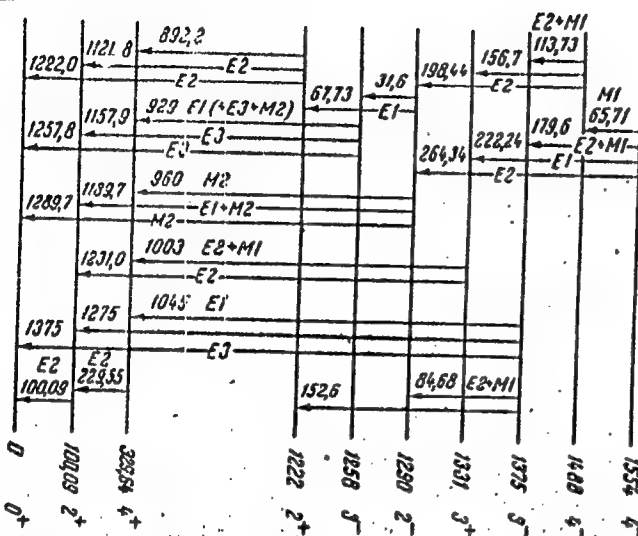
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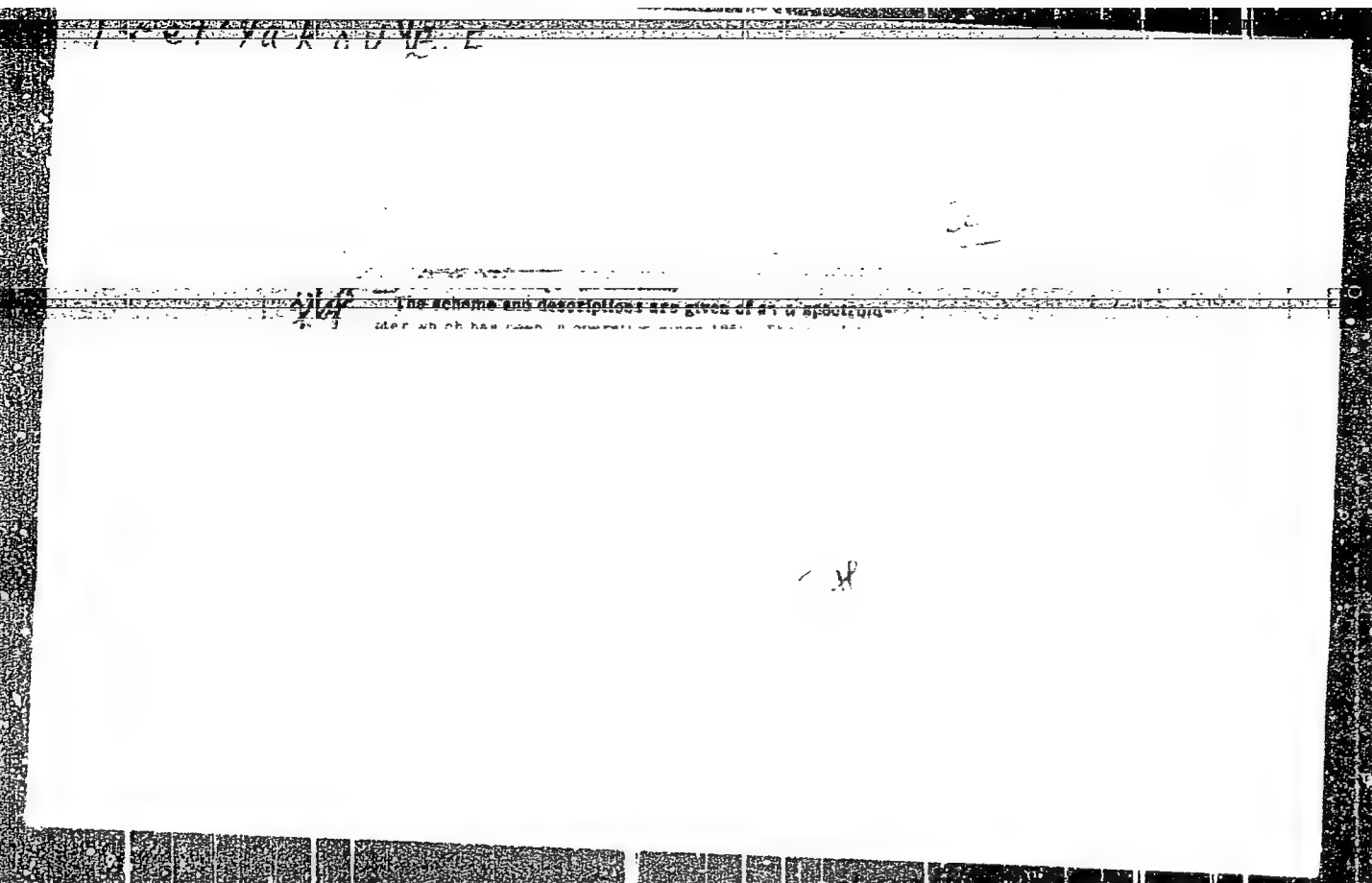


Excited levels of  $W^{182}$

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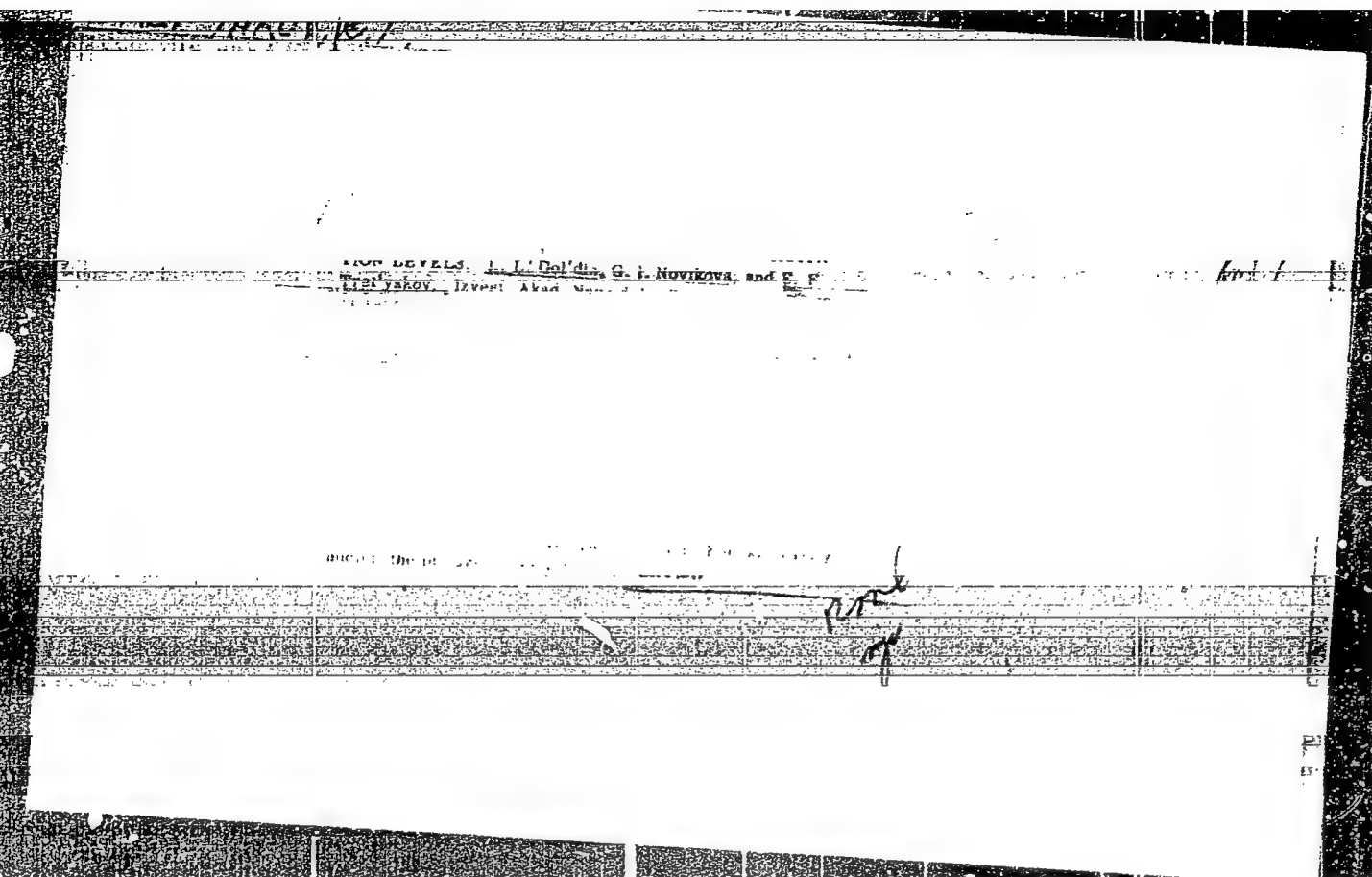
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APPROVED FOR RELEASE: 04/03/2001

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Tret'yakov, Ye. F.

120-6-4/36

AUTHORS: Tret'yakov, Ye. F., Gol'din, L. L., and Grishuk, G. I.

TITLE: A Toroidal Beta-spectrometer for Studying the Conversion Radiation Accompanying Alpha-decay (Toroidal'nyy Beta-spektrometr dlya issledovaniya konversionnogo izlucheniya soprovozhdayushchego al'fa-raspad)

PERIODICAL: Priory 1 Tekhnika Eksperimenta, 1957, No. 6, pp. 22 - 26 (USSR).

ABSTRACT: An ironless spectrometer of alpha-e coincidences with spatial focussing of electrons is described. The instrument has a resolution of about 1% and an illumination of 7% (electrons). It can be used to study conversion lines with intensities of the order of  $10^{-4}$  electrons per alpha-decay. The construction of the spectrometer is illustrated in Fig. 3. The main part of the spectrometer is a toroidal coil, 1, which produces the focussing field when a current passes through it. It consists of 800 copper turns which are water-cooled, 3. Currents up to 30 A can be passed through the coil and electrons with energies up to 0.6 MeV can be focussed. The coil is placed in a copper cylinder which is evacuated to a pressure of  $2 \times 10^{-5}$  mm Hg. Close to the source is placed a photo-multiplier, 14, which records alpha-particles. This photo-multiplier can be placed either below or above the source, 2.

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120-5.4/36

A Toroidal Beta-spectrometer for Studying the Conversion Radiation  
Accompanying Alpha-Decay.

The electrons are detected by means of crystal of stilbene 2 mm thick and mounted on a photomultiplier, 14. For use with 20 keV electrons a CsI(Tl) crystal replaces the stilbene crystal. A special "fast-slow" coincidence scheme is used to count the number of alpha-coincidences. Trial experiments were carried out using the conversion line  $L_{III}$  from the 43.5 keV gamma-line of  $Pu^{238}$  (electron energy 26.3 keV). Fig. 7 shows the conversion line  $L_{III}$  (exit angles 59-440). Half width at half height is 1.7%. Fig. 9 shows the conversion lines  $L_{II}$  and  $L_{III}$  of the 100 keV gamma-radiation from  $Pu^{238}$  (transition from the 143.3 keV level to the 43.5 keV level). The time taken to obtain the latter curve was 12 hours. G.K. Papkevich assisted in the construction of the apparatus. There are 9 figures and 4 references, 3 of which is Slavic.

ASSOCIATION: Ac. Sc. USSR (AN SSSR)

SUBMITTED: May 29, 1957.

AVAILABLE: Library of Congress  
Card 2/2

L 33627-65

$$\text{EPF}(n) \sim 2/\text{EWT}(m)/\text{ZWP}(b)/\text{ZWP}(\varepsilon)$$
$$\frac{D_{\text{eff}}}{D_{\text{eff}}^0} = \frac{1}{1 + \frac{D_{\text{eff}}^0}{D_{\text{eff}}^0} \left( \frac{D_{\text{eff}}^0}{D_{\text{eff}}^0} \right)}$$

## APPENDIX

H. J. J.

[illegible]

48'65" 29" 2, 142/142

10-17 AUTHOR: Tret'yakov, Ye.F.; Komratov, V.M.

TITLE: *Unlabeled*

served with a double toroidal-field iron-free  $\beta$  spectrometer that has been described elsewhere. The coincidence method was employed to reduce the background. The  $\beta$ -239  $\gamma$  coincidences were observed with a 100% efficient  $\beta$  detector and a 100% efficient  $\gamma$  detector. The  $\beta$ -239  $\gamma$  coincidences were observed with a 100% efficient  $\beta$  detector and a 100% efficient  $\gamma$  detector.

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ACCESSION NO: AP5005949

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KONDRAT'YEV, I.N.; TRET'YAKOV, Ye.F.

Anomalous conversion of the 59.6 Kev. transition in  $\text{Np}^{237}$ .  
Izv. AN SSSR. Ser.fiz. 30 no.1:132-134 Ja '66. (MIRA 19:1)

YEREMENKO Ye. A.: K... ..

Spectrum of internal conversion electrons accompanying  $\alpha$ -decay of  $\text{Pu}^{239}$ , and the level scheme of  $\text{U}^{235}$ . Izv. AN SSSR Ser. fiz. 29 no. 7:242-248 P 165.

(MIRA 18:3)

1. Institut teoreticheskoy i eksperimental'noy fiziki Gosudarstvennogo komiteta po ispol'zovaniyu atomnoy energii SSSR.

BEDA, A.G.; KONDRAT'YEV, L.N.; TRETYAKOV, Ye.F.

Half-life of  $\text{Cd}^{109}$ . Izv. AN SSSR. Ser. fiz. 29 no.7:1092 J1 '65.  
(MIRA 18:7)



TRET'YAKOV, Ye. F.; KONDRAT'YEV, L. N.; GRISHUK, G. I.; NOVIKOVA, G. I.;  
GOL'DIN, L. L.

Double iron-free  $\beta$ -spectrometer with a toroidal field. Izv.  
AN SSSR. Ser. fiz. 16 no.12:1470-1474 D '62.  
(MIRA 16:1)

1. Institut teoreticheskoy i eksperimental'noy fiziki AN SSSR.

(Beta-ray spectrometer)

44284  
S/048/62/026/012/003/016  
B117/B186

24.6500

AUTHORS:

Tret'yakov, Ye. F., Kondrat'yev, L. N., Grishuk, G. I.,  
Novikova, G. I., and Gol'din, L. L.

TITLE:

A double, air-core  $\beta$ -spectrometer having a toroidal field

PERIODICAL:

Akademiya nauk SSSR.. Izvestiya. Seriya fizicheskaya,  
v. 26, no. 12, 1962, 1470-1474

TEXT: A  $\beta$ -spectrometer for investigating modes of decay using a coincidence method is described. Its principle parts are two toroidal coils, each weighing 400 kg, placed one above the other and divided into 4 sections connected in parallel for cooling purposes. For each coil the distance between source and detector is 800 mm. Each coil consists of 600 insulated turns made of 0.7 mm stamped copper, which are assembled in 60 packages. They are symmetrical with respect to the median plane of the coil, connected in series, reinforced and cooled in the middle by 2 mm sheet brass provided with a water-cooled pipe. The dimensions and the resolution of the apparatus are determined by the distance  $f$  between the source (detector) and the median plane of the coil, and by the coefficient  $\kappa$

Card 1/3

A double, air-core  $\beta$ -spectrometer ...

S/048/62/026/012/003/016  
B117/B186

from the equation  $p(\text{oe cm}) = 0.2 \kappa ni (A)$ , where  $p$  is the momentum of electrons to be focused,  $i$  the current intensity, and  $n$  the number of turns.  $f = 400$ ,  $\kappa = 0.8$  were chosen as being optimum values. The coils are contained in an evacuated case carrying counter-turns on the outside to compensate parasitic fields which are set up when current flows through the coil. A vacuum lock in the middle of the case permits installation of sources between the two coils when they are operating independently. Next to the lock there are Wilson seals for the rods connected with exchangeable diaphragms. Adjustable scintillation counters with stilbene crystals, mounted perpendicular to the axis of the apparatus on separate flanges, serve as detectors. The coils are supplied from two current stabilizers controlled by d-c tube amplifiers. The power supply system makes it possible to maintain a stabilized current of 3 - 70 a for continuous operation at 80 v, or 160 v with the two coils connected in series. Each of the earth's magnetic field components is compensated to 1/50 by 3 threefold coils, connected in series, which are fed by a stabilizer made up of transistors. Debugging the apparatus is very simple; it comes down to checking that the components are accurately made and correctly assembled. With a 4-mm source and a 5-mm diaphragm, one section of the coil has a resolution of 0.45%. With an open diaphragm the

Card 2/3

A double, air-core  $\beta$ -spectrometer ...

S/049/62/026/012/003/016  
B117/B186

luminous intensity almost attains the geometrical value of 10% of  $4\pi$ ; with 0.45% resolution, it amounts to 2%. The resolution with an open exit diaphragm and a 4-mm source is 1%. The decrease in luminous intensity observed when the resolution is increased is related to the fact that the electrons are deflected in their trajectory by the stray field of the turns when they pass near the sections. The deflection of the trajectory can be partially compensated by switching in the second coil. This was confirmed in the case of a 4-mm source and a 5-mm diaphragm, with the second coil connected in series: the luminous intensity increased 1.5-fold and the resolution rose to 0.30%. The paper was presented at the 12th Annual Conference on Nuclear Spectroscopy held in Leningrad from January 26 to February 2, 1962. There are 4 figures and 1 table.

ASSOCIATION: Institut teoreticheskoy i eksperimental'noy fiziki AN SSSR  
(Institute of Theoretical and Experimental Physics AS USSR)

Card 3/3



NOVIKOVA, G.I.; VOLKOVA, Ye.A.; GOL'DIN, L.L.; ZIV, D.M.; TRET'YAKOV,  
Ye.F.

Radioactive decay of  $Ac^{277}$  and excited levels of  $Fr^{223}$  and  
 $Th^{227}$ . Zhur.eksp.i teor.fiz. 37 no.4:928-937 0 '59.

(MIRA 13:5)

(Actinium--Isotopes) (Thorium--Isotopes)  
(Francium--Isotopes)

GOL'DIN, L.L.; NOVIKOVA, G.I.; PIROGOVA, N.I.; TRET'YAKOV, Ye.F.

Alpha-decay of  $\text{Th}^{229}$ . Interaction of nuclear levels. Zhur.  
eksp.i teor.fiz. 37 no.4:1155-1157 0 '59.

(MIRA 13:5)

(Thorium--Decay)

TRET'YAKOV, V.E.; ANIKINA, M.P.; GOL'DIN, L.L.; NOVIKOVA, G.I.;  
PIROGOVA, N.I.

Spectrum of internal conversion electrons accompanying  $\alpha$ -decay  
of  $U^{233}$  and the energy level diagram of  $Th^{229}$ . Zhur. eksp. i  
teor. fiz. 37 no. 4: 917-927 0 '59. (MIRA 13:5)  
(Uranium--Isotopes) (Thorium--Isotopes) (Electrons)

TRET'YAKOV, Ye.F.; PIROGOVA, N.I.; GOL'DIN, L.L.

Conversion transitions accompanying the  $\alpha$ -decay of  $\text{Th}^{229}$ , and  
the level scheme of  $\text{Ra}^{225}$ . Izv. AN SSSR. Ser. fiz. 25 no.2:274-  
282 F '61. (MIRA 14:3)

1. Institut teoreticheskoy i eksperimental'noy fiziki AN SSSR.  
(Thorium—Isotopes) (Radium—Isotopes)

TRET'YAKOV, Ye.F.

Efficient use of grinding machines. Der.prom. 9 no.11:19 N '60.  
(MIRA 13:12)

(Grinding and polishing)

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TITLE: Conversion transitions accompanying the alpha decay of  $\text{Th}^{229}$ ,  
and the level scheme of  $\text{Ra}^{225}$

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TEXT: The present paper was read at the 10th All-Union Conference on Nuclear Spectroscopy (Moscow, 1960), and also at the 11th Annual Conference on Nuclear Spectroscopy (Riga, January 25 to February 2, 1961). It presents test results that have been obtained by the authors by using an advanced method of studying the spectrum of conversion electrons of  $\text{Ra}^{225}$ . The investigations were carried out by using not only  $\alpha$ - $e_K$  but also  $\gamma$ - $e_K$  (spectrum of conversion electrons in coincidence with gamma rays) and  $e_K$ - $\gamma$  coincidences (gamma spectrum in coincidence with the electron line). The conversion electrons were separated by means of a torroidal beta spectrometer of high intensity

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(Ref. 4). The gamma quanta were recorded by means of a scintillation gamma spectrometer, which consisted of a NaI(Tl) crystal, an amplifier, and a one-channel analyzer. The measurements were made with a  $\text{Th}^{229}$  isotope which had been obtained by chemical separation of thorium from  $\text{U}^{233}$  that had been stored for a long time. Two test series have been made. Fig. 3 shows the internal-conversion electron spectrum for one of the series. A list of the conversion transitions obtained by analysis of the conversion lines of

$\text{Ra}^{225}$  is given in Table 2. Based on the results obtained, a new level scheme has been suggested for  $\text{Ra}^{225}$  (Fig. 4). The data found during the investigation of alpha radiation of  $\text{Th}^{229}$  (Ref. 2) are given on the left side of the scheme, while on the right side, there are the level parameters which had been found by analyzing the conversion-electron spectrum. It follows from Fig. 4 that it had been necessary to introduce a new level around 25.3 keV below  $\alpha_2$ . This necessity arose due to a 25.3-keV transition with high intensity (90%) that was in a cascade with a 17.3-keV transition. Besides, the investigation of  $e_K$ - $\gamma$  coincidences showed that conversion

electrons of 25.3-keV transitions (Fig. 1) and 42.7-keV transitions coincide with gamma quanta of energies of up to 200 keV. The necessity of intro-

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ducing a level below that of  $\alpha_0$  agrees with results given in Ref. 3. Apart from the above mentioned level, also a level near  $\alpha_{214}$  had to be introduced.

According to measurements, this level energy is  $200.7$  kev, with respect to  $\alpha_0$ . Several cascades confirmed this value that had been calculated for a direct transition:  $17.3 + 193.4 = 210.7$ ;  $86.3 + 124.4 = 210.7$ ;  $56.6 + 154.2 = 210.8$ . It is pointed out that the level introduced does not contradict the existing  $\text{Th}^{229}$  spectrum since the resolution of the alpha spectrometer used was not high enough to determine an expansion of the  $\alpha_{214}$  line by  $1.2$  kev. The energy of the  $86.3$ -kev transition is almost the same as that of the  $\alpha_{88}$  transition that had been observed in the investigation of the alpha spectrum. It had to be classified as a transition from the  $210.7$ -kev level to the  $124.4$ -kev level since it coincides almost completely (about 80%) with the XK-radiation. On the assumption (Ref. 2) that the  $\alpha_{214}$  and  $\alpha_{246}$  levels are the first two levels of the rotational band, a transition of the type  $M1 + E2$  must take place with a considerable intensity. In fact, such a transition was established. Its energy is  $32 \pm 0.7$  kev and its intensity is about 5%. Spins and parities of levels

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( $\alpha_0$  and above) have been introduced on the basis of data on the multipolarity of transitions and intensities. The  $\alpha_{214}$  level with a spin 5/2 and a positive parity is taken as starting point. Studies of the spin and the parity of the level ( $\alpha_{-25.3}$ ) and of the  $\alpha_0$  and  $\alpha_{20}$  levels and their assumed spin values led to the conclusion that the ( $\alpha_{-25.3}$ ) level has a spin of 5/2 or 3/2 and a negative parity. In the alpha spectrum of  $\text{Th}^{229}$  no transition to the ( $\alpha_{-25.3}$ ) level could be found. This forbidden transition for an alpha decay seems to be due to the fact that its parity is opposite to that of other levels of  $\text{Ra}^{225}$ . The authors thank G. I. Grishuk, V. F. Zonyayev, Yu. N. Chernov, and S. V. Kalashnikov for assistance in the experiments. G. I. Novikova is mentioned. There are 4 figures, 2 tables, and 9 references: 6 Soviet-bloc.

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Legend to Table 2: 1) error (keV); 2) intensity with respect to the alpha decay (%); 3) multipolarity

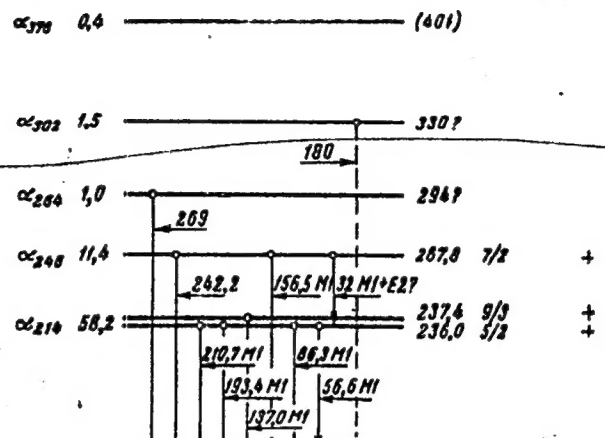
№ п/п	E, keV	По- греш- ность, keV 1	Интенсив- ность отно- сительно α-распада, % 2	Мульти- польность 3	№ п/п	E, keV	По- греш- ность, keV 1	Интенсив- ность отно- сительно α-распада, % 2	Мульти- польность 3
1	17,3	0,1	30	M1	12	131,9	0,2	3	
2	23,7	0,3	5		13	137,0	0,1	10	M1
3	25,3	0,1	70	E1	14	143,0	0,2	3	
4	32	0,7	5+3	M1 + E2	15	154,2	0,2	4	M1 (?)
5	42,7	0,2	26	E1	16	150,5	0,2	6	M1
6	50,7	0,2	3	M1	17	179,9	0,5	0,5	
7	68,9	0,3	3	M1 + E2	18	193,4	0,1	10	M1
8	75,1	0,1	18	E2	19	210,7	0,1	10	M1
9	80,3	0,1	15	M1	20	217,0	0,4	0,7+0,1	
10	107,2	0,3	1		21	242,2	0,3	0,3+0,1	
11	124,4	0,2	12	M1	22	269	1,0	0,10+0,05	Tab. 2

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FIG. 4

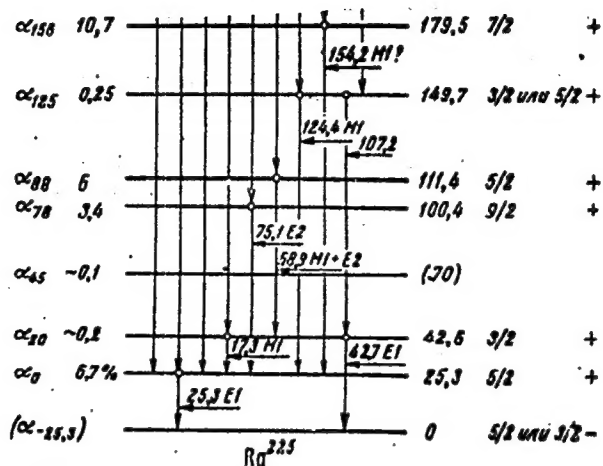


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Fig. 4



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